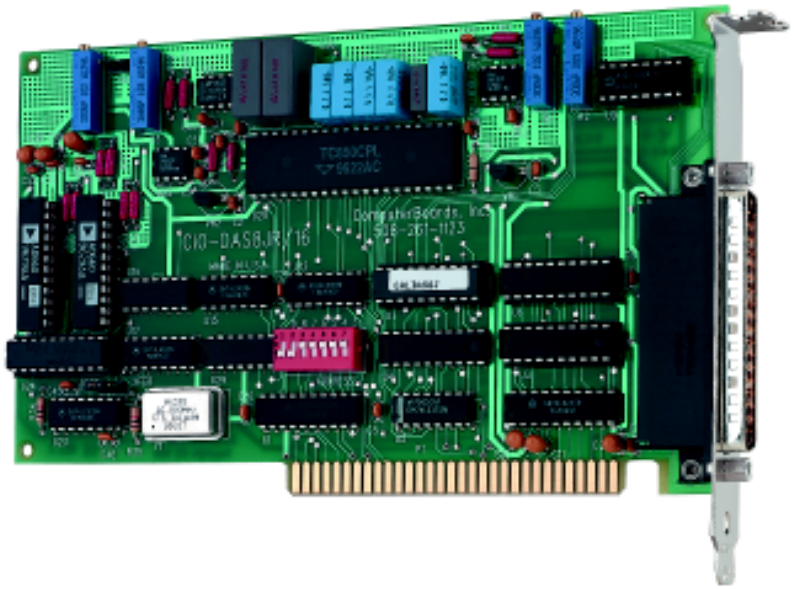
CIO-DAS08/Jr/16-AO

LOWEST COST, High Resolution, Low Speed, 8 Channel Analog In, 2 Analog Out, 16 Digital



Exciting Educational Possibilities

Personal training - self study.
Classrooms equipped with one system for every student.
Priced for students to own.
Textbook based on this board is available - see data sheet on Data Lab Solution.

The very lowest cost high resolution 8 channel A/D board available from ComputerBoards.

Great for OEM applications!

DESCRIPTION

The CIO-DAS08/Jr/16-AO multifunction analog and digital I/O board is designed to be the low cost high resolution fixed range A/D & D/A board for educational and high volume applications. The CIO-DAS08/Jr/16-AO provides every popular laboratory I/O function on a single low cost board.

The CIO-DAS08/Jr/16-AO is supported by a broad range of software to allow programmed control in DOS or Windows. An educational version of HP VEE combined with the CIO-DAS08/Jr/16 a low cost educational measurement solution.

8 ANALOG INPUTS

The analog signals of the CIO-DAS08/Jr/16-AO are brought on board by a standard 37 pin 'D' type connector directly to an analog multiplexor. The multiplexor provides 8 channels of single ended input and is protected against 30 volts max. The 16 bit integrating A/D converter provides a resolution of 1/65,536 parts of full scale. The analog inputs provide a single range fixed at +/-5V.

2 ANALOG OUTPUTS

Two independent 16 bit analog outputs supply voltage at +/-5V full scale. Control proportional valves or perform stimulus-response experiments.

8 DIGITAL INPUT, 8 DIGITAL OUTPUTS

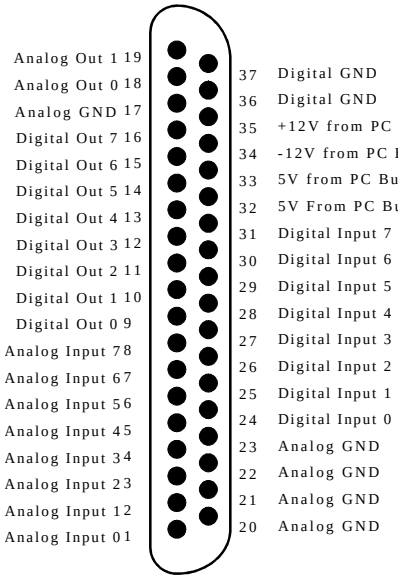
Sixteen digital interface lines supply the signals to control 8 discrete devices and monitor 8 contact closures.

CIO-DAS08/Jr/16-AO CONNECTOR

All of the analog and digital input and output signals are brought out to a single 37 pin D type connector. This connector is common to a wide range of screw terminal boards.

Order the CIO-MINI37 and C37FF-2 cable for the quickest, least expensive signal interface & screw terminal board.

Order the DFCON-37 for a simple, low cost, one time connector and shell kit where the signal assignments are known and not likely to change.



EDUCATORS SPECIAL!

A special circuit and interfacing training accessory board has been designed in conjunction with Prentice Hall's new textbook for small computer based data acquisition and control. For more information on the trainer and the textbook, please call or fax. The trainer is designed with active and passive circuits and components. The trainer, the textbook and the CIO-DAS08/Jr are all you need for a two semester college level course. A great way to learn data acq!

TRIGGERING

A Trigger is the event that begins an acquisition/transfer cycle. There is only one way to trigger a CIO-DAS08/Jr/16-AO and that is by software. A single write to the A/D converter control register will initiate a 16 bit conversion. The End Of Conversion (EOC) bit will be set by the A/D when the conversion is complete, at which time the data may be transferred into program memory. The A/D is capable of 30Hz, and your computer will have no difficulty achieving the maximum conversion rate and resolution.

Analog outputs are double buffered and update only after initiating an update via the D/A update control register. The D/As may be updated every 10uS.

Digital inputs are not latched so the current state of the digital inputs is always available to be read under program control. Digital outputs are latched and hold the level state of the most recent update. When a new byte is written to the port, the outputs are updated and held.

IF YOU DON'T NEED ANALOG OUTPUTS...

Then the CIO-DAS08/Jr/16 can save you even more money. In fact, the CIO-DAS08/Jr/16 is the first 16 bit, 8 channel analog input board we know of to break the price barrier.

The powerful combination of HP VEE and the CIO-DAS08/Jr/16. Also less than list price to any qualified educational institution. Please see the data sheet on HP VEE elsewhere in this catalog.

If your application does not call for analog outputs, order the CIO-DAS08/Jr/16 without the -AO, and save 1/3rd of the cost off each board!

Want to upgrade later?

Order the CIO-DUAL-DAC16 and insert the components. The position for the analog outputs is socketed so you can upgrade any time you decide to add analog outputs.

CONTROL REGISTERS

The CIO-DAS08/Jr/16-AO inputs and outputs are controlled and updated via a set of 8 control and status registers. These 8 bit registers are I/O mapped and the base address may be set to any 8 bit value 0h to 3F8h.

The base address switch on the board is similar to the diagram shown here. Once the base address is selected and set, the control registers occupy the base address and the next seven address locations.

SW	HEX
A9	200
A8	100
A7	80
A6	40
A5	20
A4	10
A3	8

Here are the register assignments for the CIO-DAS08/Jr/16-AO.

Address	Read Function	Write Function
BASE + 0	A/D 4 LSBs	None
BASE + 1	A/D 8 MSBs	Start 16 bit Conversion
BASE + 2	A/D Ch & Status	Set A/D Channel
BASE + 3	Dig. Inp. & D/A Update	Digital Output
BASE + 4	None	D/A #0 8 LSBs
BASE + 5	None	D/A #0 8 MSBs
BASE + 6	None	D/A #1 8 LSBs
BASE + 7	None	D/A #1 8 MSBs

PROGRAMMING & SOFTWARE

If you write your own programs or prefer to use a data acquisition and control package, we have a solution for you. The UniversalLibrary is for programmers; either Windows or DOS. Labtech Notebook is the best choice for applications packages because of the outstanding bundled offer. See data sheets elsewhere!

SPECIFICATIONS

ANALOG INPUT

A/D Resolution	16 Bits
Channels	8 Single Ended
Range	+/-5V
Conversion Speed	30mS
Linearity	+/-1 LSB
Zero Drift	+/-5 ppm /Deg C
Gain Drift	+/-25 ppm /Deg C
Overvoltage Prot.	+/-30V Continuous
Input Impedance	>10M ohm
Warm-up	20 Minutes min

ANALOG OUTPUT

D/A Resolution	16 Bits
Channels	2
Range	+/-5V
Settling Time	10uS FS
Output Current	+/-5mA
Output Resistance	0.5 Ohm Typ.

DIGITAL I/O 8 OUT & 8 IN

Output 74LS273	Sink 8mA @ 0.5V
	Source -0.4mA @ 2.7V
Input 74LS244	0 <= 0.8V
	1 >= 2.0V

POWER CONSUMPTION with A0

5V	520mA Max
+12V	78mA
-12V	66mA

POWER CONSUMPTION no AO

5V	510mA Max
+12V	36mA
-12V	25.5mA

ENVIRONMENTAL

Operating Temp	0 to 50 Deg C
Storage Temp	-20 to 70 Deg C
Humidity	0-90% Non Cond.

ORDERING GUIDE

CIO-DAS08/Jr/16-AO multifunction A/D board.

8 A/D, 2 Analog Outputs, 8 DI, 8 DO	CIO-DAS08/Jr/16-AO
8 A/D, 8 DI, 8 DO, *NO Analog Outputs*	CIO-DAS08/Jr/16
Dual DAC chip upgrades CIO-DAS08/Jr to -AO	CIO-DUAL-DAC16
Customer must install chip via insertion into a socket.	

Screw Terminal Boards

Educators screw terminal, signal conditioning and circuit training accessory board.	CIO-LAB8-TERM
4" X 4" all signals from one 37 D connector.	CIO-MINI37

Cables

2 foot ribbon cable, 37 conductor, female connectors.	C37FF-2
'N' foot ribbon cable, 37 conductor, female connectors.	C37FF-##
5 foot shielded cable, female connectors, 37 cond.	C37FFS-5
10 foot shielded cable, female connectors, 37 cond.	C37FFS-10